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Abstract

Employing child as a labor is categorized as a violation to the human right. But it seems unavoidable in developing country to prevent children entering labor market. Many extensive literatures on the determinant of child labor have been found, but yet, there is limited research on the impact of children work on socioeconomic outcomes. This paper investigates the impact of child labor on child's education by using the Indonesian Labor Survey/SAKERNAS 2002 data at the district level.

Keywords: Child Labor, Bivariate Probit, SAKERNAS.

1. Introduction

The world's attention on child labor has been increasing as there is a significant number of child labor in developing countries and their involvement in exploitative or dangerous work. The ILO estimates that around 250 million of child ages between five and fourteen work in developing countries. Although there is no record that the number of child labor in Indonesia increases by time, but the incidence of child labor itself needs to be warn. According to the study by SMERU (2002), the incidence of child labor in Indonesia was 7.09 percent (based on SAKERNAS 1998 data) and 10.04 percent (based on "100 Village Survey", 1999 data). While, the National Social and Economy Survey (SUSENAS) 2000 recorded that there are around 1.6 million child labor in Indonesia work in several type of business sectors, including high-risk or dangerous work such as agriculture, mining, and fishing (*jermal* or fish trap).

Effort to eliminate child labor in Indonesia seems to be tough, since there is abundance of child labor supply and also there is always a need to employ cheap labor. In addition, child household's background and parent's perception to allow their child entering labor market might be differs in each region. Nevertheless, the government has taken several ways to provide child protection, such as: ratified the ILO Convention No.138 (on minimum age of employment) and No.182 (on elimination of worst forms of child labor). Not until the year 2002 Indonesia has a law on child protection (Law No.23/2002 on Child Protection).

In line with the goal of reducing the number of child labor, many literatures related to child labor has focused attention on the background or determinant of child labor in the household. On the other side, there are relatively few literatures analyze the impact of child

labor on socioeconomics outcomes. Considering that education is the human basic right, this paper attempts to analyze the impact of working child on child education in the district level.

2. Literature Review

Study done by SMERU (2002) focused on the determinant of child labor in Indonesia. Using the SAKERNAS 1998 and 1999 data, the study concluded that poverty is one of important determinant of child labor in Indonesia. Moreover, this study found that working is not completely eliminates opportunity to obtain formal education among children. The analysis is done by looking at the school enrollment of child labor across age groups.

Ray and Lancaster (2004) analyzed the child labor in Nepal, Peru and Zimbabwe. The effect of child working on schooling is performed by bivariate probit estimation for rural and urban area. The result of the study is for all countries, child schooling is negatively associated with age and female gender. In Peruvian case, there is no significant association between child schooling and work decision. While for Nepal and Zimbabwe, poverty reduces the children for schooling, thus it increases the probability of child working.

Beglee, et. al (2004) estimates the effect of children working and children health by performing a panel data analysis. The main issue of the study is whether the number of children labor hour at a certain period affects the school attainment on the next period. The estimation result found that child labor significantly reduces school attainment. While, there is no significant effect of child labor on child health.

Assad, et. al (2005) using data from the Egypt Labor Market Survey 1998 estimates the causal link between child labor and school attainment. Child characteristics, household characteristics and demographics are used to estimate the joint probability of child workers and child schooling. From the estimation it is obtained that girls are more likely than boys to delay schools and to begin working at an earlier age.

3. Methodology and Data

This study uses biprobit (bivariate probit) model to estimate a joint-probability of child schooling and child working. There are two dependent variables in this model. The first dependent variable in *school* (*school*=1 if child is schooling, otherwise=0) and the second one is *work* (work=1 if child is *working*, otherwise=0). Variable used in this study involves child characteristics and household characteristics.

Data used in this study is compiled from the Indonesian Labor Force Survey/SAKERNAS 2002. The SAKERNAS is an annual survey conducted by Indonesian Central Board of Statistics/BPS. It involves around 275,353 individual sampled for the year 2002. Information provided by the SAKERNAS data are household characteristics, activities, employment of individual aged 10 years old and over.

4. Child Labor in Indonesia

Child labor in this study is defined as a child who involved in labor market. Many literatures use child aged 6-14 years old to refer a child labor. Since the SAKERNAS data contains only information of sample household ages 10 years and above, the terms of child labor in this study is child ages 10-<15 years old and 15-18 years old involved in labor market. The terms of "involved in labor market" here is that: (i) individu working during the past previous week; or (ii) has an occupation, but temporarily not working during the past previous week.

Table 1
Child Labor Characteristics

Variable	Obs	Mean	Std. Dev.
Child Labor Age	5163	16.24	1.79
Child Labor Education	5163	6.66	2.44
Child Labor Gender	5163	0.61	0.48
Age of Household head	5163	44.49	4.99
Household head Education	5163	0.72	0.45
Household Head Gender	5163	1.00	0.03
Household Head Working Status (Agriculture)	5163	0.42	0.49
Number of Household Member	5163	5.13	1.77
Number of Household Age 10+	5163	4.38	1.41
Location (Municipal)	5163	0.16	0.36

Source: Author's calculation based on SAKERNAS 2002.

Table 1 above shows the characteristics of child labor and household characteristics where child labor exists. Among 11 percent of child labor incidence in this study, about 90 percent of them live in rural area. At the district level the figure is about the same, as child labor in district reaches nearly 85 percent of total child labor. Table 2 presents child labor distribution by gender and district. For district and municipality as a whole, it can be found that the number of child labor in district level is more than those in municipality. It can be explained as majority of child in the municipality has a better access toward education. More than half proportion of children labor in district level is boys. Looking further into district and municipality characteristics, we find a slight different pattern of child labor in those two areas. In the district area, majority of children labor are boys, for two classification of age. While in the municipality, girls dominate the proportion of children labor.

Comparing to the adult working hour of 40 hours, the number of working hour of child age 10-<15 years at average is 27 hours per week, with working day around 5 days per week. Both in district and municipality, boys are working longer than girls. While, both for

female and male, working hour in municipality is longer than those in district. The average wage of child labor is Rp 278,000. This wage comprises money wage around Rp 251,000 and commodity wage (in terms of money) as much as Rp 27,000.

Table 2
Child Labor Distribution by Gender District/Municipality

	District		Municipality		District and Municipality		
	10<15	15-<18	10-<15	15-<18	10-<15	10-<18	Total
Girls	318	1,259	40	432	358	1,691	2,049
	40.51	35.23	62.5	58.38	42.17	39.2	39.69
Boys	467	2,315	24	308	491	2,623	3,114
	59.49	64.77	37.5	41.62	57.83	60.8	60.31
Total	100	100	100	100	100	100	100

Source: Author's calculation based on SAKERNAS 2002

For children age 10-<15 as a whole, their main activity is schooling. About 82 percent of them are attending school, while 2.79 percent of them are working only, 1.6 percent both working and schooling, 5 percent neither working and schooling, and the rest is helping home. This figure is slightly different in the district and kabupaten. Municipality has greater proportion of child with activities "school only" (89 percent) compared to district (79 percent). While, district has higher proportion of child with activities "work only" and "neither work or school".

Table 3
Child Labor Activities

	District				Municipality			
	Girls		Boys		Girls		Boys	
children activities	10-<15	15-18	10-<15	15-18	10-<15	15-18	10-<15	15-18
0-neither work or school	6	6	6	39			0	3
	1.89	0.48	1.28	1.68			0	0.97
1-work only	88	568	265	1,897	21	310	19	267
	27.67	45.12	56.75	81.94	52.5	71.76	79.17	86.69
2-school only	2	2	1	4				
	0.63	0.16	0.21	0.17				
3-both work and school	138	122	173	241	13	20	4	19
	43.4	9.69	37.04	10.41	32.5	4.63	16.67	6.17
4-help home only	3	30	0	7	6	102	0	1
	0.94	2.38	0	0.3	15	23.61	0	0.32
5-help home and work/	81	531	22	127			1	18
schooling	25.47	42.18	4.71	5.49			4.17	5.84
Total	318	1,259	467	2,315	100	100	24	308
	100	100	100	100			100	100

Source: Author's calculation based on SAKERNAS 2002

Information on child labor main activities by gender and municipality is show by Table 3. An interesting figure obtained from the table is that more child labor spend activities "both work and school" in district area compared to them in municipality. This is also happened for child labor activities "work only". The likelihood of this figure is that working condition in municipality is more demanding compared to district area. This argument is supported by figures in Table 4 on working status of child labor. Although it is not exactly correct to categorized child as formal or informal labor (due to the definition of formal sector itself that requires 40 hours working per week), the statistics shows that boys and girls in municipality are majority engaged in formal sector, while in district area, they are mostly engaged in informal sector.

Table 4
Children Labor's Working Status

	District				Municipality			
	10-<15		15-18		10-<15		15-18	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
Informal worker	265	381	786	1,526	18	11	60	125
	83.33	81.58	62.43	65.92	45.00	45.83	13.89	40.58
Formal worker excl.	41	53	371	506	22	13	365	155
casual worker	12.89	11.35	29.47	21.86	55.00	54.17	84.49	50.32
Casual farm worker	4	21	52	146			-	6
	1.26	4.50	4.13	6.31			-	1.95
Casual non-farm	8	12	50	137			7	22
Worker	2.52	2.57	3.97	5.92			1.62	7.14
Total	318	467	1,259	2,315	40	24	432	308
	100	100	100	100	100	100	100	100

Source: Author's calculation, based on SAKERNAS 2002.

High proportion of informal worker in district area based on the Table 4 above is due to inclusion of unpaid worker into informal worker. Unpaid family child worker in district area can reaches 45 percent of total child labor. This is because district area are majority comprises of rural area. Usually in rural area, individu work with family farm business.

Table 5
Child Labor Education

	District				Municipality			
	10-<15		15-18		10-<15		15-18	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
No School	12	13	24	41	2	1	4	0
	3.77	2.78	1.91	1.77	5	4.17	0.93	0
Unfinished Primary	93	170	108	285	5	4	27	26
	29.25	36.4	8.58	12.31	12.5	16.67	6.25	8.44
Complete Primary	205	270	597	1,134	32	18	171	121
	64.47	57.82	47.42	48.98	80	75	39.58	39.29
Complete Junior Secondary	8	14	452	768	1	1	185	115
	2.52	3	35.9	33.17	2.5	4.17	42.82	37.34
Complete Senior Secondary			78	87			45	46
			6.2	3.76			10.42	14.94
Total	318	467	1,259	2,315	40	24	432	308
	100	100	100	100	100	100	100	100

Source: Author's calculation, based on SAKERNAS 2002.

5. Result and Analysis

To analyze effect of child working on schooling, a bivariate probit is performed. From the table 6 below, it is found that the probability of child working is affected by household head gender, household head working status, household income class, and household location. Female household head tend to increase the probability of child involves in labor market. This is because female household head is associated with less earning than male household head.

Probability of child working is also positively significantly affected by household head that work in agricultural sector. Agricultural sector is highly associated with sector that involves many workers, both formal and informal. Thus, for child lives in farm worker household, the probability of being involved in agricultural working, either as an informal or casual worker is greater than child who lives in non-agricultural household.

Increasing the number of household member means increasing the probability of child working. The higher the number of household member is, the heavier is the burden of the family. Household decision of sending child to labor market in this case can be due to the opportunity of increasing household income or simply decreasing household's burden with the child absence in schooling.

There is a positive and significant of probability of households occupy the middle class income to send their child either to school or work, or both. Looking into each coefficient for schooling and working regression, it can be seen that the probability child at the middle class income households to school is greater than the probability of working. The probability of child attending school in upper class income household is also positive and significant.

In addition to household characteristics, the probability of child schooling is also affected by child own characteristics, such as age and gender. Higher age reduce the probability of child of being school. Gender factor is also matter as boys seem to have higher probability of attending school than girls. In contrast to school probability, age and gender each has no significant effect on work.

The effect of working on schooling is estimated by including variable currently working into schooling regression. The negative and significant coefficient of "working" on schooling regression indicates that there is a trade off between working and schooling. Child engaged in labor market has less opportunity involved in schooling activities. This figure is nearly the same both in municipal and district area.

Table 6
The Determinant of Child Labor

	Schooling			Working		
	Coeff.	Std.Err	P>z	Coeff.	Std.Err	P>z
working	-3.039	0.116	0.000	10.902	.	.
age	-0.252	0.020	0.000	0.032	0.026	0.211
gender	0.234	0.083	0.005	0.131	0.085	0.126
hhage1	0.005	0.007	0.485	-0.004	0.008	0.625
hhgend	1.078	0.716	0.132	-3.774	0.633	0.000
hheduc	0.342	0.088	0.000	-0.001	0.091	0.994
hhagric	0.076	0.080	0.339	-0.158	0.085	0.061
hhm2	-0.031	0.021	0.141	0.044	0.021	0.033
xwage2	0.246	0.105	0.019	0.058	0.101	0.563
xwage3	0.361	0.114	0.002	0.228	0.120	0.058
xwage4	0.189	0.141	0.180	0.237	0.164	0.149
xwage5	0.206	0.173	0.233	-0.114	0.196	0.560
municipal	0.034	0.136	0.804	0.631	0.215	0.003
_cons	2.841	0.846	0.001	-6.362	.	.

N=5136
Source: Author's calculation, based on SAKERNAS 2002.

6. Concluding Remarks

Majority of child labor in Indonesia live in district area. Most of them are working in informal sector. However, although municipality is believed to have a better access toward to education, but seems more child labor in district area spends their activities into both working and schooling compared to child labor in municipal. This is might because the opportunity cost of schooling in municipality is higher than in district area. Child labor seems to have less opportunity to school, both in municipal and district area.

References

Assad, Ragui, et.al. (2005). The Effect of Child Work on Schooling.

Beglee, Kathleen, et.al. (2004). Why Should We Care About Child Labor? The Education, Labor Market, and Health Consequences of Child Labor.

Ersado, Lire. (2002). Child Labor and School Decision in Urban and Rural Areas: Cross Country Evidence. Food Consumption and Nutrition Division. International Food Policy Research Institute.

ILO. (2006). *Attitudes to Child Labour and Education on Indonesia*.

Orazem, Peter and L. Victoria Gunnarsson. (2004). Child Labor, School Attendance and Performance: A Review. Department of Economics Working Paper Series. Iowa State University.

Oreopoulos, Philip, et.al. (2003). Does Human Capital Transfer from Parent to Child? The Intergenerational Effect of Compulsory Schooling. NBER Working Paper.

SMERU. (2002). What Happened to Child Labor in Indonesia during the Economic Crisis? The Trade-off between School and Work. Paper of SEMRU, with support from AusAID and the Ford Foundation.

Udry, Christopher. (2003). Child Labor. Center Discussion Paper No.856.